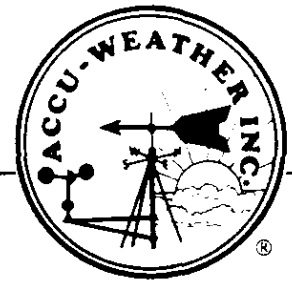


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NORMAN J. MACDONALD
Meteorologist
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BORN: August 15, 1924

EDUCATION:

High School:

Bethesda-Chevy Chase, Suburban Washington, D.C. 1939-42

College Preparatory:

Devitt Prep., Washington, D.C. 1943

College Degrees:

California Institute of Technology 1946 - B.S. in Science

California Institute of Technology 1948 - M.S. in Meteorology

**Graduate work at Massachusetts Institute of Technology -
Graduate work 1960-61 and 1964-65.**

EXPERIENCE:

November 1991-Present

Consulting meteorologist specializing in Forensic and Media Services.

1981-1991

**Senior Meteorologist, Accu-Weather, Inc., State College, PA:
Prepared hundreds of forensic weather report and made dozens of
court appearances as an expert witness; prepared and presented
lectures on voice dynamics and live radio weather broadcasts for
16 to 20 radio stations, mostly in New England.**

1976-1981

**Director and founder of MWX Services, Bedford, MA; a
Meteorological consulting firm specializing in media and
forensic meteorology.**

1974-1976

Part time teaching of undergraduate meteorology at Boston College and Northeastern university in Boston, MA, area.

1967-1976

Member research staff, Planetary Circulations Project, Department of Earth Sciences, Massachusetts Institute of Technology, Cambridge, MA; Designed, conducted and evaluated experiments using observational data to determine the dynamics and physical characteristics of planetary atmospheres.

1961-1967

Atmospheric physicist, Air Force Cambridge Research Laboratory, Hanscom Field, Bedford, MA. Designing experiments to determine relationship of geophysical phenomena to their environment and their response to extra-terrestrial influences.

1961-1977

Television and Radio Weather Broadcaster on WBZ-TV and WBZ-Radio, Boston, MA. Science News Reporter 1974-1977.

1960-1961

Senior Scientist, Advanced Research and Development Division of the AVCO Corporation, Wilmington, MA.; Investigating the dynamics of Ionosphere disturbances and their effect on radio communication.

1957-1960

Research scientist on the staff of High Altitude Observatory University of Colorado, Boulder, CO; Conducting basic research into the effects of variable solar activity on the terrestrial atmosphere.

1953-1957

Director of Weather Forecasting Services and Applied Research Division of Irving P. Krick Associates, Denver, Colorado.

1951-1953

Naval Officer, assigned to Project AROWA Norfolk, VA. with special assignment to Operation IVY (detonation of first thermonuclear device) received Letter of Commendation for performance.

1948-1952

Weather forecaster, Irving P. Krick Associates, Pasadena, CA and Houston, TX.

PUBLICATIONS

"A Guide to Arctic Forecasting" Nav. Aer. Publ., U.S. Navy 1955

"A Possible Relationship of Geomagnetic Disturbances to 300mb Trough Development" with D.D. Woodbridge and T.W. Phorte, Jrnl. of Mets. 64, 247 - 248, 1958.

"An Apparent Relationship Between Geomagnetic Disturbances and Changes in Atmospheric Circulations at 300mb" with D. D. Woodbridge and T. W. Phorte, Jrnl. of Geophys. Res. 64, 331 - 341, 1959.

"The Relation of Geomagnetic Disturbances to Change in Circulation at the 30,000 Foot Level" with D. D. Woodbridge, Science, 638 - 639, 1959.

"Further Evidence of a Solar Influence on Large Scale Circulation at 300mb" with W. O. roberts, Jrnl. Geophys. Res. 65, 529 - 539, 1960.

"Some Observations of the Mountain Wave" with H. T. Harrison, Bull. AMS 41, 627 - 632, November 1960.

"The Effect of Solar Corpuscular Emission on the Development of Large Troughs in the Troposphere" with W. O. Roberts, Jrnl. of Met. 18, 116 - 118, February 1961.

"The Predicted Performance of a High Frequency Polar Communication Network During an Ionosphere Storm" with R. Penndorph and G. E. Hill, AVCO Tech. Rpt. TR 61 - 71, page 36, April 1961.

"A Statistical Study of Lower Atmospheric - Ionospheric Coupling" with R. Knecht, Jrnl. Geophys. Res. 66, 3187 - 3190, October 1961.

"A Test of the Reality of Rainfall Singularities" with R. Shapiro, Jrnl. Met. 18. 704 - 707, October 1961.

"The Prediction of Geomagnetic Disturbances Indices" "Part I, the Elimination of Internally Predictable Variations" with F. Ward, Jrnl. Geophys. Res. 68, 3351 - 3373, June 1963.

"A Search for Rainfall Calendaricities" with G. W. Brier and R. Shapiro, Jrnl. Atmos. Sci. 20, 529 - 532, November 1963.

"A Test for a Period of 18 Cycles per Year in Rainfall Data" with G. W. Brier and R. Shapiro, Jrnl. Appl. Meteor. 3, 53 - 57, February 1964.

"The Persistence and Variability of Anomalous E-Region Penetrating Frequencies" Jrnl. Atmos. & Terres. Phys. 27, 1009 - 1018, 1965.

"Comments on a paper by V. R. Noonkester, "Non-Diurnal Variations of the E. Layer at Washington, D.C", Jrnl. Atmos. & Terres. Phys., 28, 13 - 17, 1966.

"Methods of Measuring Solar and Terrestrial Atmospheric Circulations", Tellus, 18, 13 - 17, 1966.

"The Dependence of the Motion of Cyclonic and anticyclonic Vortices on Their Sizes", Jrnl. Atmos. Sci. 24, 449 - 452, 1967.

"The Evidence For the Existence of Rossby-Like Waves in the Hurricane Vortex", Tellus 20, 138 - 150, 1968.

"Estimates of the Seasonal Variations of the General Circulation From Easily Identifiable Features", Tellus 20, 300 - 304, 1968.

"Estimating the Motion and the Mechanics of a Planetary Atmosphere", Planet & Space Phys. 17, 1149 - 1160, 1969.

"A Note on the Contribution of the Standing Eddies to the Meridional Flux of Angular Momentum", Tellus, 21, 1969.

"Further Comments on Estimating the Motion of a Planetary Wind Field", Planet Space Sci. 19, 907 - 913, 1971.

"The Relation Between the Average Motion of Cyclones and Anticyclones and Their Shape", with H. T. Storari, Jrnl. Geophys. Res. 78, 2685 - 2690, 1973.

"A Possible Association Between Convection and 'Tilting' Troughs", with F. Ward, RIVISTA Italiana DiGeofesca 23, 79 - 81, 1974.

"On the Apparent Relationship Between Convective Activity and the Shape of 500mb Troughs", Mon. Wx. Rev., 12, 1618 - 1622, 1976.

"New Findings on the Apparent Relationship Between Convective Activity and the Shape of 500mb Troughs", with T. S. Glickman and F. Sanders, Mon. Wx. Rev. 105, 1977.

Numerous popular articles in trade journals and the "Bulletin of the American Meteor. Society" and the "Natural History Magazine". Numerous letters to the various journals concerning other writing in the area of interest of the above listed publications.